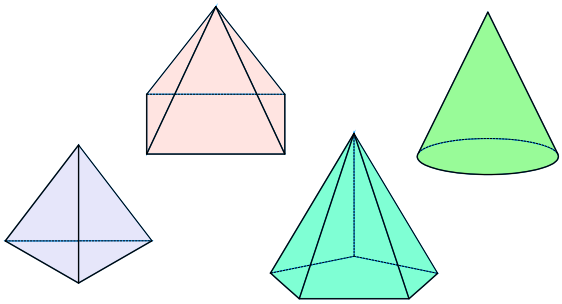
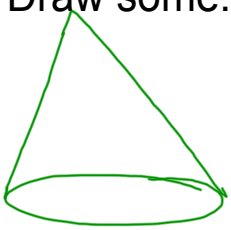
Pyramids and Cones

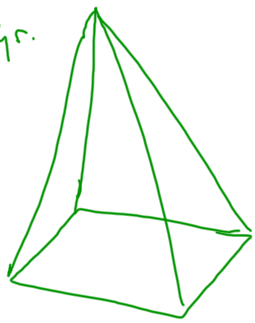
12-5
12-6
13-2

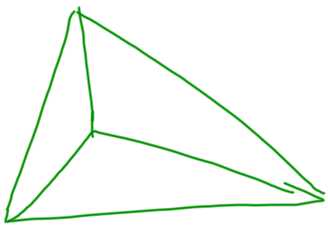


Draw some.



Sq. Pyr.





Pyramids
lateral faces--triangles

altitude-height

slant height (ℓ) – height of a lateral face

regular pyramid
- base regular polygon
- lateral edges congruent
- lateral faces congruent isosceles triangles
- altitude goes to the center of base

$\therefore$

$LA = \frac{1}{2}p\ell$

$TA = LA + B$

$V = \frac{1}{3}Bh$

r = 5cm
l = 13cm

$13^2 = 5^2 + h^2$

h = 12cm

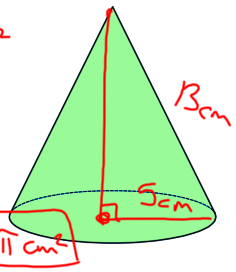
C = 10π cm

B = 25π cm^2

LA = $\frac{1}{2}p\ell = \frac{1}{2}10\pi \cdot 13 = 65\pi$ cm^2

TA = 90π cm^2

V = $\frac{1}{3}25\pi 12 = 100\pi$ cm^3



Square pyramid

side is 6cm
lateral edge is 5cm

$\ell = 4$cm

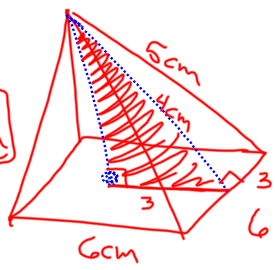
p = 24 cm

B = 36cm^2

LA = $\frac{1}{2}24 \cdot 4 = 48$cm^2

TA = 84cm^2

V = $\frac{1}{3}36\sqrt{7} = 12\sqrt{7}$ cm^3

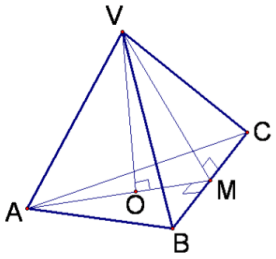


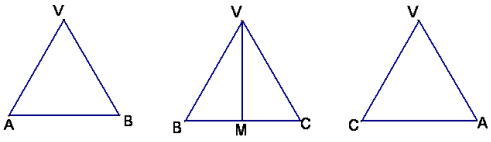
$4^2 = 3^2 + h^2$

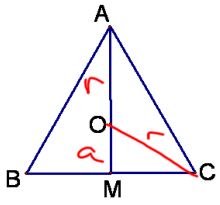
$7 = h^2$

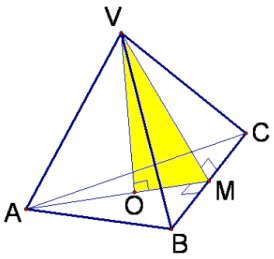
$\sqrt{7} = h$

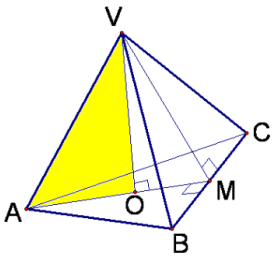
ws

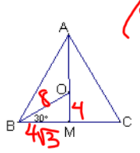












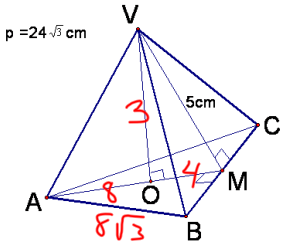
$\frac{24 \cdot 3}{4}$ $(8\sqrt{3})^2\sqrt{3}$

one s.l. $= 8\sqrt{3}$ cm

$B = 48\sqrt{3}$ cm^2

$a = 4$

$h = 3$



$LA = \frac{1}{2}pl = \frac{1}{2}24\sqrt{3} \cdot 5 = 60\sqrt{3}$ cm^2

$TA = 108\sqrt{3}$ cm^2

$V = \frac{1}{3}48\sqrt{3} \cdot 3 = 48\sqrt{3}$ cm^3

Oblique pyramids and cones use the same volume formula!

HW

p663-664	7-9, 14, 21-23
p668-669	11-13, 19
p699	9, 11, 12, 15